

WHAT IS CLAIMED IS:

1. A method for facilitating maintaining connectivity between a mobile network node and a correspondent node after the mobile network node changes addresses, the method comprising perform, by the mobile node, the steps of:

5 registering an address, for the mobile node, with an authoritative name server, wherein the registering step comprises:

specifying a current address for the mobile node, and

specifying a supplementary value that ensures the current address will not be cached within non-authoritative name servers.

10

2. The method of claim 1 further comprising the steps performed by the mobile node of:

connecting to a new network location;

receiving a second network address differing from the current address previously

15 registered with the authoritative name server;

registering the second network address with the authoritative name server; and

issuing a first binding update to a correspondent node to which a connection was previously created while the mobile node resided at the first network address, wherein a specified destination address for the first binding update specifies a first correspondent

20 node address.

3. The method of claim 2 further comprising the steps of:

receiving, by the mobile node, a binding update acknowledgement from the correspondent node; and

25 restoring a disrupted connection between the mobile node and correspondent node.

4. The method of claim 2 wherein the mobile node performs the further steps of:

30 registering a binding update failure with regard to the first binding update issued to the correspondent node at the first correspondent node address; and

issuing a naming query requesting a current address of the correspondent node.

5. The method of claim 4 further comprising the steps performed by the mobile node of:

- 5 receiving a naming query response to the naming query including a second correspondent node address for the correspondent node that differs from the first correspondent node address; and
- issuing a second binding update to the correspondent node, wherein a specified destination address for the second binding update specifies the second correspondent
- 10 node address.

6. The method of claim 2 wherein the new network location resides outside a home network of the mobile node, and wherein the method comprises the further step of:

- establishing a tunnel connection between the mobile node and a virtual private
- 15 network server;
- receiving, by the mobile node, a local network address specified by the virtual private network server, wherein the second network address corresponds to the local network address.

- 20 7. The method of claim 2 further comprising the step of:
- initiating, by the mobile node, a binding connection through a rendezvous server residing outside the home network.

8. The method of claim 2 further comprising the step of:

- 25 issuing a naming query requesting a current address of the correspondent node, before receiving a response to the first binding update.

9. The method of claim 8 further comprising:
receiving a naming query response to the naming query including a second
correspondent node address for the correspondent node;
determining that the second correspondent node address differs from the first
5 correspondent node address; and
issuing a second binding update to the correspondent node, wherein a specified
destination address for the second binding update specifies the second correspondent
node address.

10 10. The method of claim 9 wherein the issuing a second binding update step is
initiated based upon the determining step, and is therefore not dependent upon registering
a failure of the first binding update issued to the correspondent node.

11. A computer-readable medium including computer-executable instructions for facilitating maintaining connectivity between a mobile network node and a correspondent node after the mobile network node changes addresses, the computer-executable instructions facilitating performing, by the mobile node, the steps of:

5 registering an address, for the mobile node, with an authoritative name server, wherein the registering step comprises:

specifying a current address for the mobile node, and

specifying a supplementary value that ensures the current address will not be cached within non-authoritative name servers.

10

12. The computer-readable medium of claim 11 further comprising computer-executable instructions for performing, by the mobile node, the steps of:

connecting to a new network location;

receiving a second network address differing from the current address previously

15 registered with the authoritative name server;

registering the second network address with the authoritative name server; and

issuing a first binding update to a correspondent node to which a connection was previously created while the mobile node resided at the first network address, wherein a specified destination address for the first binding update specifies a first correspondent

20 node address.

13. The computer-readable medium of claim 12 further comprising computer-executable instructions for performing the steps of:

receiving, by the mobile node, a binding update acknowledgement from the
25 correspondent node; and

restoring a disrupted connection between the mobile node and correspondent node.

14. The computer-readable medium of claim 12 further comprising computer-executable instructions for performing, by the mobile node, the further steps of:

30

registering a binding update failure with regard to the first binding update issued to the correspondent node at the first correspondent node address; and
 issuing a naming query requesting a current address of the correspondent node.

5 15. The computer-readable medium of claim 14 further comprising computer-executable instructions for performing, by the mobile node, the steps of:

receiving a naming query response to the naming query including a second correspondent node address for the correspondent node that differs from the first correspondent node address; and

10 issuing a second binding update to the correspondent node, wherein a specified destination address for the second binding update specifies the second correspondent node address.

15 16. The computer-readable medium of claim 12 wherein the new network location resides outside a home network of the mobile node, and further comprising computer-executable instructions for facilitating performing the steps of:

establishing a tunnel connection between the mobile node and a virtual private network server; and

20 receiving, by the mobile node, a local network address specified by the virtual private network server, wherein the second network address corresponds to the local network address.

17. The computer-readable medium of claim 12 further comprising computer-executable instructions for:

25 initiating, by the mobile node, a binding connection through a rendezvous server residing outside the home network.

18. The computer-readable medium of claim 12 further comprising computer-executable instructions for:

30 issuing a naming query requesting a current address of the correspondent node, before receiving a response to the first binding update.

19. The computer-readable medium of claim 18 further comprising computer-executable instructions for:

5 receiving a naming query response to the naming query including a second
correspondent node address for the correspondent node;
determining that the second correspondent node address differs from the first
correspondent node address; and
10 issuing a second binding update to the correspondent node, wherein a specified
destination address for the second binding update specifies the second correspondent
node address.

20. The computer-readable medium of claim 19 wherein the issuing a second
binding update step is initiated based upon the determining step, and is therefore not
dependent upon registering a failure of the first binding update issued to the
15 correspondent node.

21. A mobile network node facilitating maintaining connectivity with a correspondent node after changing network addresses, the mobile network node including a communications protocol stack comprising computer-executable instructions for facilitating maintaining connectivity between a mobile network node and a correspondent node after the mobile network node changes addresses, the computer-executable instructions facilitating performing, by the mobile node, the steps of:

registering an address, for the mobile node, with an authoritative name server, wherein the registering step comprises:

specifying a current address for the mobile node, and

specifying a supplementary value that ensures the current address will not be cached within non-authoritative name servers.

22. The mobile network node of claim 21 further comprising computer-executable instructions for performing, by the mobile node, the steps of:

connecting to a new network location;

receiving a second network address differing from the current address previously registered with the authoritative name server;

registering the second network address with the authoritative name server; and

issuing a first binding update to a correspondent node to which a connection was previously created while the mobile node resided at the first network address, wherein a specified destination address for the first binding update specifies a first correspondent node address.

23. The mobile network node of claim 22 further comprising computer-executable instructions for performing the steps of:

receiving, by the mobile node, a binding update acknowledgement from the correspondent node; and

restoring a disrupted connection between the mobile node and correspondent node.

24. The mobile network node of claim 22 further comprising computer-executable instructions for performing, by the mobile node, the further steps of:

registering a binding update failure with regard to the first binding update issued to the correspondent node at the first correspondent node address; and

5 issuing a naming query requesting a current address of the correspondent node.

25. The mobile network node of claim 24 further comprising computer-executable instructions for performing, by the mobile node, the steps of:

10 receiving a naming query response to the naming query including a second correspondent node address for the correspondent node that differs from the first correspondent node address; and

issuing a second binding update to the correspondent node, wherein a specified destination address for the second binding update specifies the second correspondent node address.

15

26. The mobile network node of claim 22 wherein the new network location resides outside a home network of the mobile node, and further comprising computer-executable instructions for facilitating performing the steps of:

20 establishing a tunnel connection between the mobile node and a virtual private network server; and

receiving, by the mobile node, a local network address specified by the virtual private network server, wherein the second network address corresponds to the local network address.

25 27. The mobile network node of claim 22 further comprising computer-executable instructions for:

initiating, by the mobile node, a binding connection through a rendezvous server residing outside the home network.

30 28. The mobile network node of claim 22 further comprising computer-executable instructions for:

issuing a naming query requesting a current address of the correspondent node, before receiving a response to the first binding update.

29. The mobile network node of claim 28 further comprising computer-
5 executable instructions for:

receiving a naming query response to the naming query including a second correspondent node address for the correspondent node;

determining that the second correspondent node address differs from the first correspondent node address; and

10 issuing a second binding update to the correspondent node, wherein a specified destination address for the second binding update specifies the second correspondent node address.

30. The mobile network node of claim 29 wherein the issuing a second
15 binding update step is initiated based upon the determining step, and is therefore not dependent upon registering a failure of the first binding update issued to the correspondent node.